

IN THE CLAIMS

Please amend the claim as follows:

1. (Currently Amended) An antenna remote control apparatus for a base station in a mobile communication system, comprising:

a remote controller for matching a driving voltage for a motor used to control the beam direction of an antenna, a reference signal for measuring the rotation state of the motor, and an RF signal for mobile communication and transmitting the matched signal via a feeder cable; and

an antenna controller for receiving the matched signal from the remote controller via the feeder cable, dividing the matched signal into the reference signal, the motor driving voltage, and the RF signal, driving the motor using the motor driving voltage, and outputting a variation in the reference signal depending on the rotation state of the motor to the remote controller via the feeder cable, wherein the remote controller comprises

a frequency generator for generating the reference signal to measure the rotation state of the motor that controls the beam direction and tilting angel of the antenna;

a motor voltage generator for generating the driving voltage required to drive the motor mounted to the antenna;

a matcher for combining the output of the frequency generator with the output voltage of the motor voltage generator without interference and receiving the variation in the rotation state of the motor from the antenna controller;

a bias T for combining the output of the matcher with the RF signal and outputting the combined signal to the antenna controller via the feeder cable;

a signal detector for detecting the variation in the rotation state of the motor from the signal received from the matcher, converting the variation to a square wave signal, and

outputting the square wave signal; and

a controller for outputting a voltage and control signal for driving the motor and receiving a control result value from the signal detector, thereby continuously controlling the motor voltage generator and the frequency generator.

2. (Canceled)

3. (Original) The antenna remote control apparatus of claim 1, wherein the antenna controller comprises:

a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals;

the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna; and

an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

4. (Original) The antenna remote control apparatus of claim-[[2]] 1, wherein the antenna controller comprises:

a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals;

the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna; and

an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

5. (Currently Amended) The antenna remote control apparatus of claims the claim 1-[[2] and 4]], wherein the matcher is a transformer.

6. (Currently Amended) The antenna remote control apparatus of claims the claim 1-[[2] and 4]], wherein the signal divider comprises:

a capacitor C2 for passing the RF signal to a radiation device of the antenna;

inductors L1 and L2 for passing the motor driving voltage to the motor;

a capacitor C3 for passing the reference signal to the encoder; and

capacitors C4 and C5 for blocking the RF signal from the motor and the encoder.

7. (New) The antenna remote control apparatus of the claim 4, wherein the matcher is a transformer.

8. (New) The antenna remote control apparatus of the claim 4, wherein the signal divider comprises:

a capacitor C2 for passing the RF signal to a radiation device of the antenna;

inductors L1 and L2 for passing the motor driving voltage to the motor;

a capacitor C3 for passing the reference signal to the encoder; and

capacitors C4 and C5 for blocking the RF signal from the motor and the encoder.

9. (New) An antenna remote control apparatus for a base station in a mobile communication system, comprising:

a remote controller for combining a driving voltage for a motor used to control the beam direction of an antenna, a reference signal for measuring the rotation state of the motor, and an RF signal for mobile communication and transmitting the combined signal via a feeder cable; and

an antenna controller for receiving the combined signal from the remote controller via the feeder cable, for dividing the combined signal into the reference signal, the motor driving voltage, and the RF signal, driving the motor using the motor driving voltage, and for outputting a variation in the reference signal depending on the rotation state of the motor to the remote controller via the feeder cable.

10. (New) The antenna remote control apparatus of claim 9, wherein the remote controller comprises:

a frequency generator for generating the reference signal to measure the rotation state of the motor that controls the beam direction and tilting angle of the antenna;

a motor voltage generator for generating the driving voltage required to drive the motor mounted to the antenna;

a matcher for combining the output of the frequency generator with the output voltage of the motor voltage generator without interference and receiving the variation in the rotation state of the motor from the antenna controller;

a bias T for combining the output of the matcher with the RF signal and outputting the combined signal to the antenna controller via the feeder cable;

a signal detector for detecting the variation in the rotation state of the motor from the signal received from the matcher, converting the variation to a square wave signal, and outputting the square wave signal; and

a controller for outputting a voltage and control signal for driving the motor and receiving a control result value from the signal detector, thereby continuously controlling the motor voltage generator and the frequency generator.

11. (New) The antenna remote control apparatus of claim 9, wherein the antenna controller comprises:

a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals;

the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna; and

an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

12. (New) The antenna remote control apparatus of claim 10, wherein the antenna controller comprises:

a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals;

the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna; and

an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

13. (New) The antenna remote control apparatus of the claim 10, wherein the matcher is a transformer.

14. (New) The antenna remote control apparatus of the claim 10, wherein the signal divider comprises:

- a capacitor C2 for passing the RF signal to a radiation device of the antenna;
- inductors L1 and L2 for passing the motor driving voltage to the motor;
- a capacitor C3 for passing the reference signal to the encoder; and
- capacitors C4 and C5 for blocking the RF signal from the motor and the encoder.

15. (New) The antenna remote control apparatus of the claim12, wherein the matcher is a transformer.

16. (New) The antenna remote control apparatus of the claim12, wherein the signal divider comprises:

- a capacitor C2 for passing the RF signal to a radiation device of the antenna;
- inductors L1 and L2 for passing the motor driving voltage to the motor;
- a capacitor C3 for passing the reference signal to the encoder; and
- capacitors C4 and C5 for blocking the RF signal from the motor and the encoder.